

## **REMARKS**

Entry of the amendment instructions above and favorable reconsideration and allowance of this application are requested.

### **I. Summary of Amendments**

Independent claim 20 has been amended so as to recite the range of amine end groups (AEGs) for the nylon core and sheath polymers. Specifically, the AEG for the nylon core polymer has now been recited as being between about 10 to about 100 meq/kg, while the AEG for the nylon sheath polymer is recited in claim 20 as being less than about 10 meq/kg.

Support for the AEG of the nylon core polymer being between 10 to about 100 meq/kg may be found in originally filed claim 5 (which of course constitutes its own "disclosure") as well as at page 10, lines 5-9. Support for the AEG of the nylon sheath polymer being less than about 10 meq/kg can also be found via originally filed claim 5 and at page 11, line 27.

Claims 29-34 are new. In this regard, claim 29 is dependent on independent claim 20 and recites the AEG of the nylon core polymer being between about 20 to about 50 meq/kg as supported at page 10, line 9 of the original specification. Claim 30 is in independent form and is identical to claim 20, except that the AEG content of the nylon core polymer is recited as being between about 20 to about 50 meq/kg (i.e., as supported at page 10, line 9 of the original specification), and the AEG content of the nylon sheath polymer is recited as being less than about 5 meq/kg (i.e., as supported at page 12, line 3-5 and by original claim 6).

Claims 31-34 depend directly or indirectly from new independent claim 30 and are based on currently pending claims 21, 23, 26 and 27, respectively.

Thus, claims 20-21, 23, 25-27 and 29-34 remain pending in this application for which allowance is solicited.

The specification at page 10, lines 6-9 has been amended so as to conform the same to the subject matter of originally filed claim 5. No question of "new matter" within the purview of 35 USC §132 has been presented since original claim 5 constitutes its own disclosure which is part of the specification as originally filed.

## II. Response to 35 USC §112 Issue

The amendments to claim 20 are believed to address the rejection advanced against 35 USC §112, second paragraph. Specifically, the AEG content of the nylon core and sheath polymers are now clearly recited in claim 20. As such, withdrawal of the rejection advanced against the claims under 35 USC §112, second paragraph is believed to be in order.

## III. Response to Art-Based Rejections

What should not be lightly overlooked when reviewing the patentability of the present invention is that the applicants have discovered a method whereby **stain-resistant** sheath/core filaments may be provided which are nonetheless capable of being **acid dyed**. This is especially novel since many "stain" materials (e.g., C.I. Food Red 17) are themselves acid-dyes of sorts. The present invention therefore represents a real and non-trivial advance in the art since nylon fibers may be dyed by acid dyes contained in conventional acid dye baths, yet are nonetheless resistant to staining (e.g., by acid stain materials).

As is defined in pending independent claim 20, such novel attributes ensue by virtue of a nylon sheath/core filament formed of a nylon sheath polymer and a nylon core polymer which is surrounded entirely by the sheath polymer such that the filament contains less than about 10 wt.% of the sheath polymer. The nylon sheath polymer is

resistant to, and thereby remains substantially undyed by, the acid dye in a dye bath and has an amine end group (AEG) content of less than about 10 meq/kg. The nylon core polymer, on the other hand, is susceptible to dyeing by the acid dye dyes in the dye bath and has an AEG content of between about 10 meq/kg to about 100 meq/kg. Thus, when the thus formed nylon sheath/core filament is brought into contact with the dye bath, the acid dye therein will physically diffuse or penetrate through the sheath to dye the core while the sheath remains substantially undyed.

None of the applied references of record discloses or even remotely suggests such a novel method as defined by applicants' pending claim 20 or the claims dependant therefrom.

**1. The combination of Seagraves in view of Lin does not render claims 20, 23 and 25-27 unobvious under 35 USC §103(a).**

The entire thrust of the Examiner's "obviousness" assertions seems to be that one of ordinary skill in this art would have "obviously" provided a sheath polymer with the herein claimed AEG content and in an amount of less than 10 wt% so that the core can be acid-dyed, while the sheath remains substantially undyed. Applicants emphatically disagree.

For example, applicants emphatically disagree with the Examiner's assertion that the sheath polymer of Seagraves somehow inherently possesses the applicants' claimed AEG content and, even if it doesn't such an AEG content would have been obvious to an ordinarily skilled person. Seagraves is not concerned at all with providing an anti-staining sheath/core filament, but instead is concerned with an asymmetrical sheath/core filament which improves its "crimpability". At column 4, lines 16-23, Seagraves suggests that some differential dyeing is possible as between the sheath and the core, but such differential dyeing is attributed to the differences between the nylon 6-12/6 nylon copolymeric core, and the homopolymeric nylon sheath. Hence, based on Seagraves, one of ordinary skill in this art would not be lead to the presently

claimed sheath/core filaments whereby the sheath and core polymers have the claimed AEG contents and/or the sheath is present in an amount of less than about 10wt.%. Certainly, Seagraves' disclosure of the sheath therefore being "lighter" in color as compared to the core cannot in any way be suggestive of an essentially **undyed** sheath.

Lin simply discloses that sheath/core filaments may be formed of a nylon 6,12 polymer sheath and a nylon 6,6 polymer core. Example 2 of Lin discloses that the nylon 6,6 polymer has an AEG content of 50 meq/kg, but no disclosure or suggestion as to the AEG content of the sheath polymer is provided. Moreover, Lin does not suggest at all that the therein disclosed sheath/core filament may be acid-dyed such that the core is dyed by an acid dye in a dye bath by migrating physically through the sheath (i.e., so the sheath remains substantially undyed). What Lin does disclose therefore, is that (i) the sheath polymer is nylon 6,12, (ii) the core polymer is nylon 6,6, and (iii) the only amino end group content of *any* polymer employed is 50 meq/kg.

Thus, even if Lin were to be combined with Seagraves, the present invention would not result. That is, such a combination would not be suggestive of a method whereby a **stain-resistant nylon** sheath/core filament may be made having an essentially undyed **nylon** sheath and an **acid-dyed** nylon core.

**2. The combination of Seagraves in view of Anton or Lijten does not render claim 21 unpatentable under 35 USC §103(a).**

The inappropriateness of Seagraves vis-à-vis the presently claimed invention as defined in claims 20, 23 and 25-27 has already been discussed above and is thereby incorporated herein by reference. Claim 21 pending herein, of course, further limits the filament of claim 20 in the form of a trilobal filament.

Applicants are not claiming to be the first inventors of trilobal filaments per se. Instead applicants are claiming to be the first inventors of the **specific** trilobal filaments as recited in claim 20. Neither Anton nor Lijten cure the deficiencies of Seagraves as

noted above.

In this regard, both Anton and Lijten are apparently being used by the Examiner to support her assertion that trilobal filaments are known generally. Applicants do not dispute this. Applicants, however, vigorously dispute that Anton or Lijten somehow cures the deficiencies of Seagraves. They do not.

Applicants note that Anton actually leads someone skilled in this art *away from* the presently claimed invention since the AEG content of the sheath polymer is between 15-40 meq/kg. Perhaps more importantly, Anton discloses that such a sheath polymer having the AEG content stated is important to ensure its dyeability by **basic** dyes. Thus, the suggestion provided by Anton is that such differences in the AEG contents between the sheath and core polymers is necessary so as to ensure cross-dyeability. Such disclosure would not, applicants submit, be suggestive at all of a sheath/core filament having the attributes of the present invention whereby a **stain-resistant nylon** sheath/core filament may be made having an essentially undyed **nylon** sheath and an **acid-dyed** nylon core.

Lijten is suggested to be even less pertinent to the present invention as compared to the references discussed above. All that Lijten can arguable be said to disclose that is pertinent to the present invention is that trilobal filaments are known generally which, as noted previously, is not disputed at all by the Applicants. Lijten therefore fails to cure the deficiencies of the applied references discussed above.

**3. The combination of Anton in view of Lin does not render claims 20-21, 23 and 25-27 unpatentable under 35 USC §103(a).**

Anton and Lin have been discussed previously and thus such discussion is incorporated by reference here. Their combination does not render obvious claims 20-21, 23 and 25-27 unpatentable under 35 USC §103(a).

To summarize, Anton actually leads someone skilled in this art *away from* the presently claimed invention. Specifically, Anton discloses that the AEG content of the sheath polymer is between 15-40 meq/kg – **not** less than 10 meq/kg as defined in independent claim 20. Moreover, Anton discloses that such a sheath polymer having the AEG content stated is important to ensure its dyeability by **basic** dyes.

Lin simply discloses that sheath/core filaments may be formed of a nylon 6,12 polymer sheath and a nylon 6,6 polymer core. Example 2 of Lin discloses that the nylon 6,6 polymer has an AEG content of 50 meq/kg, but no disclosure or suggestion as to the AEG content of the sheath polymer is provided.

Hence, the combination of Anton and Lin would not lead an ordinarily skilled person toward the invention defined by the present applicants' claims 20-21, 23 and 25-27.

**4. The combination of Lin in view of Hoyt and further in view of Seagraves does not render claims 20, 23 and 25-27 unpatentable under 35 USC §103(a).**

Hoyt et al is apparently being employed in combination with Lin and Seagraves for the proposition that one of ordinary skill in this art would “obviously” substitute the polymer disclosed therein for the sheath polymer of Lin. However, as noted above, Lin is completely silent regarding the AEG content of its sheath polymer. Hence, there is no suggestion at all for any skilled person to go searching for another sheath polymer in view of the Lin disclosure since (a) Lin does not ascribe any significance to the AEG content of either the sheath and/or core polymer vis-à-vis stain resistance, and (b) Hoyt et al discloses a *sulphonated* nylon polymer is necessary in order to fulfill the stain-resistance results. Hence, an ordinarily skilled person would not be guided to select any specific nylon polymer, let alone a polymer having an AEG content as disclosed in Hoyt.

Seagraves adds little, if anything, to the combination. All that Seagraves has

recognized is that, under “certain conditions”, a **blend** of nylon 6-12/6 polymer accepts dyes readily while a nylon 6-12 polymer sheath does not. No suggestion or contemplation exists in Seagraves of a sheath polymer having the attributes of the presently claimed invention.

**5. The combination of Lin, Hoyt and Seagraves, and further in view of Anton or Lijten does not render claim 21 unpatentable under 35 USC §103(a).**

The comments immediately above in paragraph VIII.4 are equally germane to the Examiner’s rejection of claim 21 based on the combination of Lin, Hoyt and Seagraves, and further in view of Anton or Lijten. Again, the Examiner is apparently using the Anton and Lijten references in this rejection merely for their teaching of “trilobal” filaments. As has been discussed already at length, applicants readily acknowledge that trilobal filaments generally are known. What is disputed here is that Lin, Hoyt and Seagraves somehow, when combined, render “obvious” the present invention under 35 USC §103(a). As has already been demonstrated, they do not. As such, the further combination of Anton or Lijten does not cure the deficiencies of Lin, Hoyt and Seagraves.

To reiterate, applicants have discovered a method whereby **stain-resistant** sheath/core filaments may be provided which are nonetheless capable of being **acid dyed**. This is especially novel and unobvious since many “stain” materials (e.g., C.I. Food Red 17) are themselves acid-dyes of sorts. The present invention therefore represents a real and non-trivial advance in the art since the nylon sheath/core fibers may be dyed by acid dyes contained in conventional acid dye baths, yet are nonetheless resistant to staining (e.g., by acid stain materials).

While the art of record evidences a recognition generally of sheath/core nylon fibers, and the desirability of stain-resistant nylon fibers, none of the applied references of record, either individually or collectively disclose or suggest a method whereby a

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nylon sheath/core filament formed of a nylon sheath polymer and a nylon core polymer which is surrounded entirely by the sheath polymer such that the filament contains less than about 10 wt.% of the sheath polymer may be subjected to an acid dye in a dye bath such that the acid dye in the dye bath will physically diffuse or penetrate through the sheath to dye the core while the sheath remains substantially undyed (i.e., by virtue of the nylon sheath polymer being resistant to the dye, and the nylon core polymer being susceptible to the dye).

### **III. Conclusions**

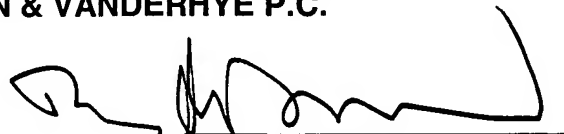
Withdrawal of the rejections advanced against prior claims 20, 21, 23, and 25-27 is therefore in order.

The comments above are even further indicative of the patentability of newly presented claims 29-34. Accordingly, allowance of all such newly presented claims is also solicited.

Respectfully submitted,

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